

# HPA 502

# HPA 1001-70V

HALF RACK POWER AMPLIFIERS



**HPA 502**  
100 Watt 2 Channel Half Rack Power Amplifier



**HPA 1001-70V**  
70 Volt 100 Watt Mono Half Rack Power Amplifier

- 100 watts rms power output
- Professional grade amplifier design
- ENERGY STAR® qualified amplifier – less than 1 watt power consumption in standby
- Highly efficient Class D amplifier design
- Patented CDRS™ - Class D Ripple Suppression
- Convection cooled
- Plenum rated
- Compact 1U, half rack width enclosure
- Auto-standby with fast power-up
- Remote volume and mute control port
- Hidden, detented rear panel level controls
- Multiple protection circuits
- Remote standby port



The Extron HPA 502 and HPA 1001-70V are compact, highly efficient, ENERGY STAR qualified audio power amplifiers that are professional grade and feature Class D amplification with patented CDRS - Class D Ripple Suppression technology for near-zero EMI emissions. These compact 1U, half rack width amplifiers are ideal for installation in lecterns and equipment racks with limited space and ventilation.



## Extron® Electronics

[www.extron.com](http://www.extron.com)

## DESCRIPTION

The Extron **HPA 502** and **HPA 1001-70V** are compact power amplifiers designed for installation in racks and lecterns. These ENERGY STAR qualified amplifiers feature a highly efficient Class D amplifier design with patented CDRS - Class D Ripple Suppression technology from Extron that nearly eliminates EMI emissions and interference with wireless A/V equipment. This high efficiency allows the amplifiers to be convection cooled without the need for fans and operate in environments with little or no ventilation. These professional grade amplifiers deliver more than 100 dB signal-to-noise ratio, unweighted and THD + Noise of less than 0.05%. With a compact, plenum-rated 1U, half rack width enclosure, the HPA 502 and HPA 1001-70V deliver ample power output for speaker systems in classrooms, meeting rooms, boardrooms, and commercial environments.



The HPA 502 and HPA 1001-70V are ENERGY STAR qualified amplifiers and energy efficient products to help meet green building requirements. They consume just 8 watts when idle and less than one watt in standby mode. The HPA 502 and HPA 1001-70V enter into standby after one hour of

inactivity, or when the standby port is triggered. Additionally, both amplifiers are plenum-rated, allowing for a concealed installation above a drop ceiling to prevent theft while providing convenient placement of A/V equipment.

### HPA 502

The HPA 502 two channel amplifier delivers 50 watts rms per channel into 4 or 8 ohms for amplification of voice or program audio content to stereo program speakers, or two sets of distributed ceiling speakers in a dual zone application.

### HPA 1001-70V

The HPA 1001-70V delivers 100 watts rms for 70 volt constant voltage speaker distribution systems for voice reinforcement and PA - public address applications.

The HPA 502 and HPA 1001-70V accept balanced and unbalanced input signals and include detented level controls located on the rear panel to prevent tampering. These controls allow for proper audio system gain structure, or setting individual levels for each zone. Remote control capability is available for volume adjustment and muting. Additionally, both amplifiers include multiple protection circuits that activate when an abnormal condition, such as excessive clipping or overheating, is detected.

## FEATURES

- **50 watts rms per channel into 4 or 8 ohms - HPA 502** – The HPA 502 provides greater power output for larger rooms than smaller amplifiers with lower power ratings.

- **100 watts rms output for 70 volt speaker systems - HPA 1001-70V** – The HPA 1001-70V provides greater power output for larger rooms than smaller amplifiers with lower power ratings.

- **Professional grade amplifier design** – The HPA 502 and HPA 1001-70V deliver more than 100 dB signal-to-noise ratio, unweighted and THD + Noise of less than 0.05% for ultra-low noise performance.

## FEATURES (Cont.)

- **ENERGY STAR qualified amplifiers** – The HPA 502 and HPA 1001-70V are energy efficient products to help meet green building requirements for low power consumption and reduced operating costs.
- **Highly efficient Class D amplifier design** – The HPA 502 and HPA 1001-70V generate substantially less heat than conventional amplifier designs, making them ideal for installation in equipment racks and lecterns with very limited ventilation. They consume 8 watts when idle and less than 1 watt in standby mode.
- **Patented CDRS - Class D Ripple Suppression** – A patented, exclusive technology from Extron that nearly eliminates the high frequency switching ripple and EMI emissions found in typical Class D amplifiers. CDRS enables Extron power amplifiers to be situated near wireless A/V devices without RF interference.
- **Convection cooled** – The HPA 502 and HPA 1001-70V are convection cooled without the need for fans, ensuring quiet, reliable operation.
- **Plenum rated when used with optional Flexible Conduit Adapter Kit, part # 70-228-02** – The HPA 502 and HPA 1001-70V meet UL 2043 for smoke and heat release for installation within a plenum airspace above a drop ceiling. Above-the-ceiling placement conceals the amplifier to prevent theft, and is convenient for installing equipment when space inside the room is limited.
- **Compact 1U, half rack width metal enclosure** – With the capability to deliver full-sized amplifier power in half the size of many conventional amplifiers, the HPA 502 and HPA 1001-70V reduce rack space requirements for many installations.
- **Auto-standby with fast power-up** – The HPA 502 and HPA 1001-70V automatically enter into a standby mode after one hour of inactivity, dramatically reducing power consumption. They quickly return to full power status upon signal detection.
- **Rear panel detented level controls** – Provide attenuation of input signals for setting proper audio system gain staging as well as two-zone applications. Their location on the rear panel prevents users from tampering with level adjustments.
- **Multiple protection circuits** – Activate during excessive clipping, thermal overload, or DC faults to prevent damage to the amplifier and speakers.
- **Remote standby port** – Enables the HPA 502 and HPA 1001-70V to be remotely powered down when not in use, reducing operating cost.
- **Remote volume and mute control port** – In basic installations without third-party control systems, this port allows the HPA 502 and HPA 1001-70V to be remotely controlled using the optional Extron VCM 100 Series volume and mute or VC 50 volume controllers.
- **Input summing - HPA 1001-70V** – Actively sums incoming left and right channel signals for mono amplification.
- **High pass filter - HPA 1001-70V** – This switch selectable filter rolls off frequencies below 80 Hz to prevent saturation of speaker transformers.
- **Screw-lock, 5 mm captive screw speaker connectors** – Enables simple, secure connections with 22 to 14 AWG speaker cables.
- **Front and rear-mounted signal and protection indication LEDs** – Provide convenient indication of amplifier operation from both sides of an equipment rack.
- **Internal international power supply**

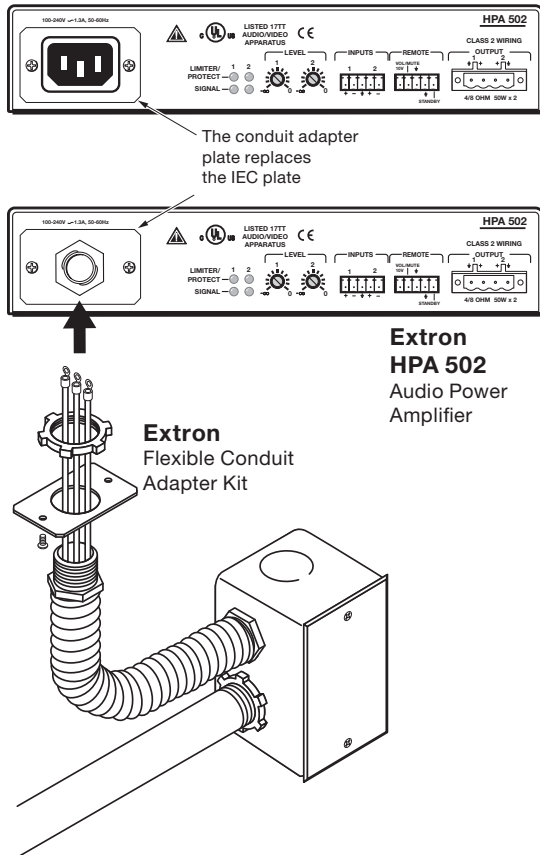
# DESCRIPTION

## Plenum Rated

In many rooms, the space above the ceiling is often used as a return air plenum. To ensure safety from potentially harmful heat and smoke release in the event of a fire, A/V products installed in ceilings with a plenum airspace must comply with safety codes and be specifically rated for use in plenum environments. The HPA 502 and HPA 1001-70V power amplifiers are both UL 2043 rated to conform to heat and smoke release codes for plenum environments. Installing an amplifier above a drop ceiling offers flexibility for integrators wanting to conserve rack space and achieve a clean, streamlined installation free of visible cable runs. An amplifier situated above the ceiling is also concealed from view, which prevents the possibility of theft.

## Flexible Conduit Adapter Kit

The HPA 502 and HPA 1001-70V feature a built-in power supply with a modular power connection. In a rack installation, these amplifiers would be powered from an AC receptacle. However, when the amplifier is to be permanently situated above a drop ceiling, the HPA 502 and HPA 1001-70V can be directly hard-wired for AC power when the optional Flexible Conduit Adapter Kit, part # 70-228-02, is used in place of a conventional power cord. With this kit, the wiring is encased in flexible conduit, which connects directly to the amplifier and a local junction box. This can simplify installation without the necessity to provide an AC receptacle above the drop ceiling. As with the HPA 502 and HPA 1001-70V, the Flexible Conduit Adapter Kit is plenum-rated and meets UL 2043 for smoke and heat release.



# SPECIFICATIONS

## AUDIO

Voltage gain  
HPA 502 / HPA 1001-70V..... 16x (24 dB) / 57x (35 dB)

## AUDIO INPUT

Number/signal type ..... 2 stereo/mono, balanced/unbalanced  
Connectors ..... (1) 3.5 mm captive screw connector, 5 pole  
Impedance ..... >10k ohms unbalanced/balanced, DC coupled  
Nominal level ..... +4 dBu (1.23 Vrms), balanced  
Maximum level ..... +20 dBu (7.75 Vrms), balanced  
Input sensitivity  
HPA 502 ..... +4 dBu (1.23 Vrms)  
HPA 1001-70V ..... +4 dBu (1.23 Vrms) if driven by one input  
-2 dBu (0.615 Vrms) if both inputs are summed  
Stereo channel separation (HPA 502)..... >75 dB @ 1 kHz  
CMRR ..... >75 dB @ 1 kHz  
NOTE: 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu

## AUDIO OUTPUT

Number/signal type  
HPA 502 ..... 1 stereo, 4- or 8-ohm  
HPA 1001-70V ..... 1 mono 70 V  
Connectors  
HPA 502 ..... (1) 5 mm screw lock captive screw connector,  
4 pole  
HPA 1001-70V ..... (1) 5 mm screw lock captive screw connector,  
2 pole  
Minimum load impedance  
HPA 502 ..... 4 ohms  
HPA 1001-70V ..... 100 watts into a 70 V line  
Amplifier type ..... Class D  
Continuous power output with a full load and 1% THD at 1 kHz  
HPA 502 ..... 50 watts (rms) per channel at 4 or 8 ohms  
HPA 1001-70V ..... 100 watts (rms)  
Frequency response ..... 20 Hz to 20 kHz, ±1 dB  
THD + Noise ..... <0.05% @ 1 kHz at full rated power, 8 ohms  
(HPA 502) or 70 V (HPA 1001-70V)  
S/N ..... >100 dB (unweighted)  
Damping factor (HPA 502 only) ..... >100 @ 8 ohms  
High pass filter (HPA 1001-70V only) ..... 80 Hz, 12 dB per octave (switch selectable)

## CONTROL/REMOTE – AMPLIFIER

Control port..... (1) 3.5 mm captive screw connector, 5 pole  
Pin configurations  
DC volume control (analog)..... Pin 1 = 10 VDC, pin 2 = volume/mute (10k ohm pot.), pin 3 = GND  
Standby power control (contact closure) .. Pin 4 = GND, pin 5 = standby

## GENERAL

Power ..... 100 VAC to 240 VAC, 50/60 Hz, internal  
Typical ..... 20 watts  
Quiescent ..... 8 watts  
Standby ..... <1 watt (triggered by contact closure or after 1 hour with no signal)  
Cooling..... Convection, unvented, with internal heat sinks  
Protection..... Clip limiting, thermal, short circuit, DC output  
Indication ..... Limiter/Protect LED indicates the onset of clip limiting, thermal cycling, short circuit, or DC output protection  
Rack mount ..... Yes, with optional 1U rack shelf, part #60-190-01 (RSU 129) or #60-604-01 (RSB 129)  
Enclosure type ..... Metal  
Enclosure dimensions ..... 1.7" H x 8.7" W x 9.5" D (1U high, half rack wide)  
4.3 cm H x 22.1 cm W x 24.1 cm D  
Product weight ..... 2.5 lbs (1.1 kg)  
Shipping weight ..... 7 lbs (4 kg)  
Listings ..... UL, CUL  
UL rated for use in plenum airspaces: meets UL 2043 for heat and smoke release; meets UL 60950 and UL 6500 for safety.  
Compliances..... CE, FCC Class A, VCCI, AS/NZS, ICES, ENERGY STAR® qualified amplifier  
MTBF ..... 30,000 hours  
Warranty ..... 3 years parts and labor  
NOTE: All nominal levels are at ±10%.

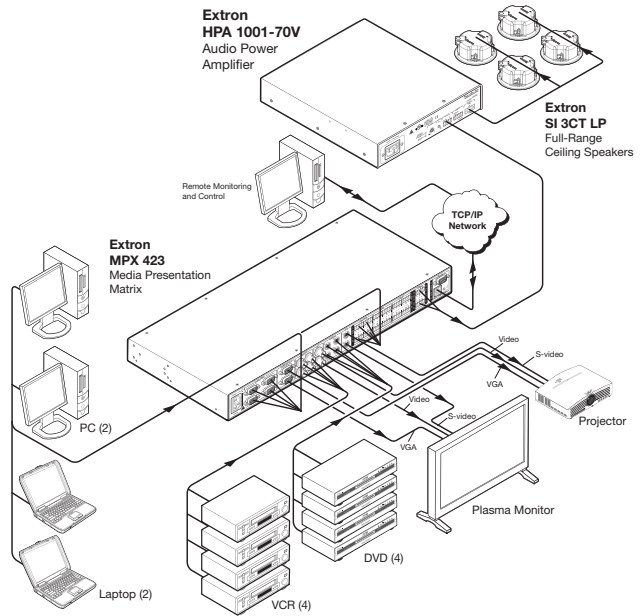
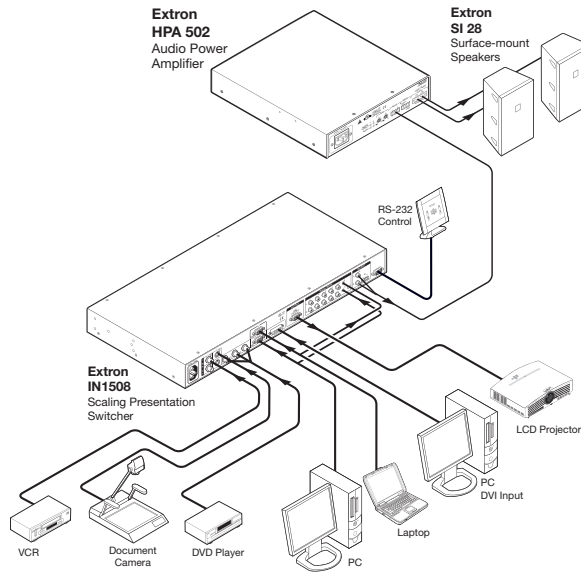
Model	Version Description	Part Number
HPA 502	100 Watt Two Channel Power Amplifier .....	60-849-01
HPA 1001-70V	70 Volt 100 Watt Mono Power Amplifier .....	60-850-01

## Optional Accessories

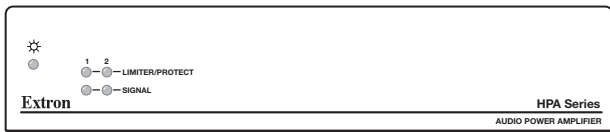
Flexible Conduit Adapter Kit For PS 123.....	70-228-02
RSB 129 1U 9.5" Deep Basic Rack Shelf.....	60-604-01

Specifications are subject to change without notice.

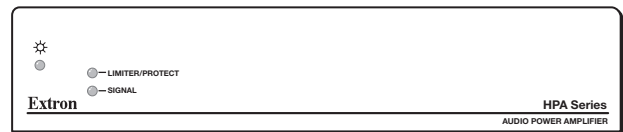
# APPLICATION DIAGRAMS



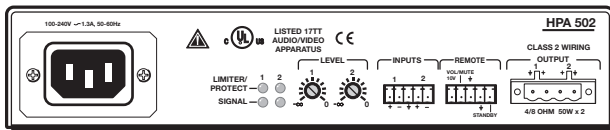
# PANEL DRAWINGS



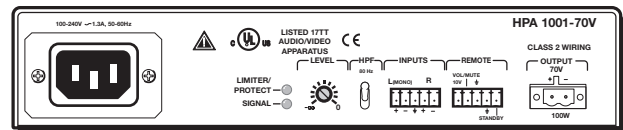
HPA 502 - Front



HPA 1001-70V - Front



HPA 502 - Back



HPA 1001-70V - Back



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